

CLARIFICATIONS AND LECTOTYPIFICATIONS OF SOME NORTH
AMERICAN *DELPHINIUM*

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ABSTRACT

Clarifications of type specimens and lectotypifications are provided for 56 epithets of *Delphinium* in North America. These names will be used in several forthcoming floristic works, either to designate various taxa or in synonymy.

KEY WORDS: Nomenclature, taxonomy, North America, floristics.

Clarifications of the type specimens for fifty six epithets pertaining to *Delphinium* from North America are necessary, in order that the names represented by the types may be properly applied. The names treated in this paper apply primarily to plants that grow in California and this work was undertaken as part of a treatment of *Delphinium* for the forthcoming revision of the *Manual of the Flora of California*. Several epithets not relating to California plants are also included as these will be used for an upcoming treatment of *Delphinium* for the *Flora of North America*. The listing is alphabetical by species epithet and within species, alphabetical by infraspecific epithet.

Delphinium alabamicum Kral, Side 6:250. 1976. Type: UNITED STATES. Alabama, Franklin County, ca 5 mi S Russellville by US 43/Alabama 17, limestone glade, 26 May 1970, R. Kral 39113 (LECTOTYPE [here designated]: US 2825960!; Isotypes: ALAB,C!,MO!,NY!,PAC!,TENN!,UC!,US-2!,VDB!).

Kral stated with his description of *Delphinium alabamicum*, that the type specimen was at US. In a search of the holdings of *Delphinium* at US, three sheets of this collection were found. The one showing the most superior quality of preservation of the features of the description is chosen as the lectotype.

Delphinium alatum A. Nelson, Amer. J. Bot. 32:286. 1945. Type: UNITED STATES. Alaska, Toklat River, near Alaska Road Commission Cabin, Mount McKinley National Park, 10 August 1939. A. & R. Nelson 4093 (LECTOTYPE [here designated]: RM 184985!; Isotypes: GH!, ILL!, US!).

Nelson (1945) cites the collection indicated above with his description, but does not indicate a herbarium in which to find it. Since Nelson was based in Laramie at the time he collected this plant, the logical starting point in searching for specimens of this collection was RM. A sheet of this collection was found there, along with three others in other herbaria. Examination of the four sheets of the type collection discovered so far, shows that each has either "TYPE" or "ISOTYPE" in the upper right hand corner of the label. These notations are in typescript and were apparently placed as the labels were being prepared before distribution of the specimens. The specimen at RM is the only one with the notation "TYPE" rather than "ISOTYPE," and is therefore taken as the lectotype. In addition, the specimen at RM closely matches the description.

Delphinium alpestre Rydberg, Bull. Torrey Bot. Club 29:146. 1902. Type: UNITED STATES. Colorado, mountains NW of Como, 31 July 1895, C.S. Crandall & J.H. Cowan 1948 (HOLOTYPE: CS!; Isotype: NY [frag-mentary]!).

In his original description of *Delphinium alpestre*, Rydberg cites the collection number as 1848. A *Delphinium* specimen collected by Crandall & Cowan bearing this collection number could not be located in any of the herbaria examined. It seems reasonable to assume that an error was made in the original publication, so that the collection number was published incorrectly. This view is further supported by the fact that the specimen in CS bears Rydberg's annotation label, identifying the specimen as *D. alpestre* and matches the locality data given with the description.

Delphinium andersonii A. Gray, Bot. Gaz. 12:53. 1887. Based on citation of *D. menziesii* DC., in Watson, *Botany of the Clarence King Expedition* "as to Nevada plant" (non *D. menziesii* DeCandolle) and *D. decorum* var. *nevadense* Wats., *Geological Survey of California—Botany* 1:11. 1880. Not *D. decorum* var. *nevadense* sensu Ewan (1945, p. 116). LECTOTYPE [here designated]: UNITED STATES. Nevada, Trinity Mountains, May 1868, S. Watson 39 (GH!); Isotype: (US!).

Ewan (1945, p. 194) had previously designated a lectotype for *Delphinium andersonii* (UNITED STATES. Nevada, near Carson City, 1865. C.L. Anderson 172 [GH!]). However, Gray (1887) clearly indicated that his new combination was based on *D. menziesii* (sensu Watson) of the *Botany of the King*

Expedition and part of *D. decorum* var. *nevadense* Wats. of the *Botany of California*. Gray cited no specimens with his description. Watson (1871), in his discussion of what he recognized as *D. menziesii*, cites his number 39 as typical of the plant, with his number 40 having pink flowers and number 41 with double flowers. Therefore, *Watson 39* would seem to be the logical lectotype. The choice of lectotype is based on the best match with Watson's original concept of *D. menziesii* (1871, p. 11), both by his statements in the protologue and the description of the plant. In addition, since the specimen was at GH, Gray would have had access to it in order to use it as a basis for his *D. andersonii*.

Delphinium apachensis Eastwood, Proc. California Acad. Sci., ser. 4 20:142. 1931. Type: UNITED STATES. Arizona, along road from Apache Lodge to Packard, near Roosevelt Dam, 12 May 1929, A. Eastwood 17144 (HOLOTYPE: CAS 167759!).

Originally published as *Delphinium apachensis*, but may be treated as an orthographic error and altered to *D. apachense*. Ewan cites the type as having been collected in Gila County. Roosevelt Dam is on the border between Gila and Maricopa counties.

Delphinium armeniacum Heller, Leaf. West. Bot. 2:219. 1940. Type: UNITED STATES. California, Lassen County, about a mile E of Fredonyer Pass, between Westwood and Susanville on St. Rt. 36, sparsely wooded dry slope, 5600 ft, 4 June 1938, A.A. Heller 15149 (HOLOTYPE: BKL; Isotypes: CAS!, DS!, ILL!, JEPS!, MO!, NY!, POM!, RSA!, UC!, US!, WTU-3!). Not *D. armeniacum* Stapf ex Huth, Bot. Jahrb. Syst. 20:329. 1895.

The location of the holotype is listed here as BKL, even though Heller referred to the holotype location as "Heller Herbarium." According to Stafleu & Cowan (1979), the Heller Herbarium is at BKL. Isotypes that have been examined appear to be hybrid derivatives of *Delphinium nudicaule* (of which *D. armeniacum* Heller is a synonym) and *D. nuttallianum*. Both taxa grow near the type locality of *D. armeniacum* Heller and putative hybrids have been seen there by the present author.

Delphinium burkei Greene, Erythea 2:183. 1894. Type: UNITED STATES. Idaho, Snake Country, 11 July, J. Burke (LECTOTYPE [here designated]: K 8803; Isotype: K!).

Greene's description merely cites Burke's collection, from Snake Country, probably Idaho. Ewan (1945) cites the type as being in K. Two sheets with the proper data were found in K. Further, the two sheets in K had apparently been studied by both Gray and Greene, as they had each annotated the specimens. Greene (1894) mentions in his description of *Delphinium burkei*, that Gray had referred to Burke's specimens as *D. andersonii* (along with some further, not too subtle comments about Gray's knowledge of the genus and region). Indeed, the specimens at K are annotated as *D. andersonii* in Gray's hand and *D. burkei* in Greene's. Thus, Ewan's statement that the type specimen was to be found in K was accurate. However, a lectotype is required to be designated from between those two. The sheet numbered 8803 is chosen as the lectotype because of its better exhibition of the features noted in the description.

Delphinium californicum Torrey & A. Gray, *Flora of North America* 1:31
1838. HOLOTYPE: UNITED STATES: California, *D. Douglas* (LECTO-
TYPE [Ewan 1945, p. 145]: GH!; Isotypes: BM-2!, K-2!, NY!).

The type specimens of *Delphinium californicum* were most likely taken from near San Francisco in late May of 1832. This may be deduced by matching Douglas' travels as summarized by McKelvey (1955), with the distribution and phenology of *D. californicum*. The specimens of the type collection are in an early stage of flowering, normally seen near the end of May in most years. Morphologically, the plants match populations from the San Francisco area somewhat better than those from the Monterey area. However, the variation in this species is more pronounced perpendicular to the coast than along the coast, such that plants from Monterey and San Francisco will look more alike than will plants from San Francisco and Oakland. It is possible that Douglas could have taken the type of *D. californicum* from the Monterey area in 1831, but according to the summary of his travels that spring, he was in Santa Barbara at the time when *D. californicum* near Monterey should having been in the stage of development seen in the type collection.

Delphinium californicum Torrey & A. Gray var. *interius* Eastwood, *Leafl.*
West. Bot. 2:137. 1938. Type: California, San Joaquin County, Hospital
Canyon, 24 May 1938, A. Eastwood & J.T. Howell 5796 (LECTOTYPE
[here designated]: CAS 259949!; Isotypes: CAS-2!, F!, GH!, JEPS!, K!, NY!,
POM!, UC!, US!).

Three sheets at CAS were cited as types with the original description, each probably part of a different individual. The lectotype is chosen on the basis of its match with the description and the fact that it is in an intermediate stage

of development, thus showing the largest number of features of the taxon (one of the other specimens is entirely in fruit and the other has been damaged).

Delphinium canmoreense Rydb., *Flora of the Rocky Mountains*. 312 (combination and description), 1060 (type citation). 1917. Type: CANADA. Alberta, Canmore, Rocky Mountains, 1 July 1885, J. Macoun (HOLOTYPE: NY!).

Rydberg cited the type as from British Columbia, but Canmore is in the province of Alberta and plants similar to the type of *Delphinium canmoreense* are found in the area of Canmore, Alberta.

Delphinium cardinale Hooker, Curtis' Bot. Mag. 11:t. 4887. 1855. Type: described from plants grown by Veitch in the Exeter and Chelsea Exotic Nurseries from seed collected in California by W. Lobb (LECTOTYPE [here designated]: K! [the specimen bearing parts of two inflorescences—one of them branched—and two leaves, with the citation "*Delphinium cardinale*, Hook. Bot. Mag. t. 4887, Cult. California."])).

Four specimens (all at K) have been seen that could possibly be construed as types. One is a specimen collected by Lobb, near San Bernardino, California. This probably is the voucher for the seed collection from which garden plants were grown, but since the description states that the species was described from cultivated material, Lobb's specimen must be eliminated as a type. The illustration accompanying the description appears as if it may be a composite from all three of the other specimens. Choice of the lectotype was based on the fact that it matches more features of the illustration and closely follows the written description.

Delphinium cardinale var. *angustifolium* Huth, Bot. Jahrb. Syst. 20:473. 1895. LECTOTYPE (here designated): UNITED STATES. California, San Diego County, Solidad, 1875, *E.J. Palmer* 7 (G-BB!); Isotypes: BM!, F!, GH!, NY!.

Ewan (1945, p. 190) had previously designated a different specimen (*i.e.* UNITED STATES. California, San Bernardino, May 1881, *S.B. Parish & W.F. Parish* 609 (G-BB!)) as the lectotype. However, Ewan's choice may be superseded for two reasons. First, by his own admission, Ewan chose this specimen because it was the first listed by Huth (1895). At the time when Ewan completed his synopsis of the North American species of *Delphinium*, it was common practice to assume the first of a list of specimens provided by an

author of a new name was the one that the author meant as "the type." Ewan consistently followed the "first cited specimen as the type" practice throughout his work. In some cases, this has fortuitously resulted in selection of the most logical lectotype that could have been chosen using any other criteria. In these cases, the present author has merely cited Ewan's selection as a lectotype, even though Ewan rarely used this term in his 1945 paper. Being a mechanical means of selection, this choice is in violation of Art. 8.1 of the current *International Code of Botanical Nomenclature*. Second, Huth's listing of specimens immediately below the description of *Delphinium cardinale* var. *angustifolium* is a listing of specimens of *D. cardinale* (both varieties recognized by Huth). This pattern is followed throughout Huth's (1895) work, only rarely did he designate certain specimens as representative of his newly named varieties. Therefore, any of the specimens in Huth's listing could potentially be types for *D. cardinale* var. *angustifolium*. These include *Parish & Parish 609* (which is typical *D. cardinale*) which Huth indicated was in G-BB!, *Parish & Parish* (collected in 1882) which Huth indicated was in B,LE and his private herbarium (I have seen none of these), *Palmer 7* (said by Huth to be in G-BB!) and an Orcutt collection from Baja California in 1886 (indicated to be in G-BB). The Palmer specimen was chosen due to its close match to the description given by Huth. Duplicates of the Orcutt collection seen at F,NY and WIS also fall within the boundaries of the description of *D. cardinale* var. *angustifolium*. However, since the Orcutt specimen purported to be at G-BB could not be located during my visit and the Palmer specimen is perfectly suitable, the Palmer specimen was chosen.

Delphinium coelestinum Rydb., Bull. Torrey Bot. Club 39:320. 1912. Type: UNITED STATES. Utah, southern part of state, 1877, *E.J. Palmer 10* (HOLOTYPE: NY!; Isotypes: CAN,US!).

Ewan (1936) clearly explains certain difficulties with the numbering of Palmer's specimens, such that the appropriate collection number for the type should be 10 and not 11 as cited by Rydberg (1912). Not *Delphinium coelestinum* Franchet, J. Bot. (Morot) 8:276. 1894. *Delphinium coelestinum* Rydberg was replaced by *D. amabile* Tidestrom, Contr. U.S. Natl. Herb. 25:207. 1925.

Delphinium cuyamacaе Abrams, Bull. Torrey Bot. Club 32:538. 1905. Type: UNITED STATES. California, San Diego County, borders of Cuyamaca Lake, grassy slopes, 1550 m, 26 June 1902. *L. Abrams 3888* (LECTO-TYPE [Ewan 1945, p. 175]: DS!: Isotypes: BM!.CAN,F!,G!.GH!.K!.MO!.NY!.P!.PH!.UC!.US!.Z-2!).

Ewan (1945, p. 175) cited the DS specimen as the "type." However, Abrams did not specify a herbarium for storage of the type with his original description, therefore, there is no holotype. Consequently, Ewan's choice of the specimen at DS is a lectotypification. As a point of interest for future workers, and to avoid any possible confusion, Ewan annotated (in 1933) the sheet at DS as an isotype.

Delphinium decorum var. *nevadense* Wats., in Brewer & Watson, *Geological Survey of California-Botany* 1:11 (1880). LECTOTYPE [here designated]: UNITED STATES. Nevada, Trinity Mountains, May 1868, S. Watson 39 (GH!); Isotype: (US!).

Ewan (1945, p. 116) had previously designated a lectotype as: UNITED STATES. California, above Cisco, 1873, H.N. Bolander (GH!). However, Watson (Brewer & Watson 1880a) clearly indicated that *Delphinium decorum* var. *nevadense* was based on *D. menziesii* (sensu Watson) of the *Botany of the Clarence King Expedition*. Ewan's lectotype is therefore superfluous. Watson (1871), in his discussion of what he recognized as *D. menziesii*, cites his number 39 as typical of the plant, with his number 40 having pink flowers and number 41 with double flowers. The choice of lectotype is based on the best match with Watson's original concept of *D. menziesii* (1871, p. 11), both by his statements in the protologue and the description of the plant.

Delphinium decorum var. *racemosum* Eastwood, Bull. Torrey Bot. Club 28:671. 1901. LECTOTYPE [here designated]: UNITED STATES. California, San Mateo County, Stanford Heights, April 1894, A. Eastwood (CAS 235!).

Chosen from among several specimens listed with the original description. The choice was made on the basis of its match with the description and the fact that it has a handwritten designation as the type and part of the discussion from Eastwood's paper repeated. These are apparently in Eastwood's hand. The type of this variety appears to represent a backcross of a hybrid between *Delphinium patens* and *D. decorum* into a *D. decorum* population.

Delphinium diversifolium Greene, Pittonia 3:93. 1896. LECTOTYPE [here designated]: UNITED STATES. Nevada, Elko County, Ruby Range, Holborn Station, 16 July 1896, E.L. Greene (ND-G 3205!; Isotype: ND-G 3203!).

Greene cited no specimens when describing his new species, merely stating that it was "frequent in subalpine moist meadows among the mountains about the headwaters of the Humboldt River in eastern Nevada." Ewan (1945, p. 115) cited the "type" as: UNITED STATES. Nevada, Elko County, from near Holborn Sta., 15-16 July 1896, *E.L. Greene* (ND-G 3201!, 3202 and 3206!). Since Ewan did not designate a single specimen as a lectotype, one must still be chosen. Upon examination of specimens at ND-G, five specimens were located that could serve as types for this name. Two of the sheets mentioned by Ewan (3201 and 3206) were found in the folder marked *Delphinium diversifolium*. In addition, 3203, 3204 and 3205 were found in the same folder. Specimens from all five sheets were collected by Greene at Holborn Station. Sheets 3201, 3204 and 3206 were collected 15 July 1896 and were apparently the specimens referred to by Ewan (even though one of the numbers is different than cited by him). Sheets 3203 and 3205 were collected on 16 July 1896. Sheets 3203 and 3205 bear a hand written (apparently Greene's) citation of the publication of *D. diversifolium*. The other three sheets lack this notation. Therefore, the choice of lectotype may be narrowed to these two sheets. Number 3205 is chosen as the lectotype because of the better match with the description.

Delphinium elatum var. *occidentale* Wats.. *Botany of the Clarence King Expedition* 5:11. 1871. Type: UNITED STATES. Utah, Wahsatch [sic] Mountains, July 1869, *S. Watson* 38 (LECTOTYPE [Ewan 1945, p. 137]: GH!).

Additional specimens collected by Watson and given the number 38 are found in NY! and US!. These were collected in July 1868 in the East Humboldt (Ruby) and Clover Mountains of Nevada. Watson (1871) mentions having seen the plants both "in the East Humboldt and Clover Mountains of Nevada, and in the Wahsatch" and his original description of *Delphinium elatum* var. *occidentale* could be applied to all three specimens, since he refers to members of the new taxon as "glabrous, or densely pubescent above." However, by the time he made the combination *D. occidentale*, Watson had apparently either narrowed his view of the taxon or had sent away the other specimens and no longer had them for reference. This state of affairs is suggested by the fact that when Watson made the combination *D. occidentale* (Brewer & Watson 1880b), he states "It is readily recognized by the stiff glandular spreading pubescence . . . the raceme often compound," clearly eliminating the Nevada specimens from the scope of this taxon. The presence of spreading glandular hairs and the frequently branched inflorescence are features found in plants produced as a result of hybridization between *D. glaucum* and *D. barbeyi* (Huth) Huth, indicating that Watson made his type collection in a population where hybridization was occurring between these two taxa. Such populations are quite

common in the Wasatch Mountains, but are not found in Nevada, since *D. barbeyi* does not occur in Nevada.

Delphinium exaltatum Aiton var. *barbeyi* Huth, Helios 10:35. 1893. LECTOTYPE: UNITED STATES. Colorado. Boulder County, Massif de l'Arapahoe, 10000 ft, July 1891, E. Penard 7 (G-BB!).

Huth cited two collections by Penard with his original description. The first, was that cited here as lectotype. The second was collected near the town of Caribou, Colorado. Ewan (1945) cited the Arapahoe Peak collection as the type, without having seen it or the Caribou collection (which he cited as a paratype). The Arapahoe Peak collection is the preferable lectotype since it is a more complete specimen, more closely matches the original description (tripartite bracts, subglabrous middle stem, etc.), bears a hand written label (apparently by Huth) "*Delphinium exaltatum* var. *barbeyi* n. var." and also is associated with the drawing included with the later circumscription of the taxon as a species (although this association could have been made at any time since 1893).

Delphinium glaucum Wats., in Brewer & Watson, *Geological Survey of California-Botany* 2:427. 1880. Based on citation of *D. scopulorum* A. Gray, in Brewer & Watson, *Geological Survey of California-Botany* 1:11. 1880. LECTOTYPE (here designated): UNITED STATES. California, Big Tree Road, near Camp 129, 6000 ft, 30 July 1863, W.H. Brewer 1940 (GH!); Isotypes: UC-2!, US-2!.

Watson (Brewer & Watson 1880a, p. 11) listed "Big Tree Road, Brewer" and "Sierra Valley, Lemmon" as representatives of this plant. Where he makes the combination *Delphinium glaucum* in the second volume, he cites no specimens. Since Watson worked primarily with specimens at GH, the search for a lectotype was begun there. Two specimens were located that matched the information given by Watson. These were Brewer's collection and a collection by Lemmon (716) from "Sierra Co. &c., California, 1874" Both specimens have been annotated by A. Gray as *D. scopulorum* var. *glaucum*, but only the Brewer specimen was annotated as *D. glaucum* Wats. Brewer's specimen was therefore chosen as the lectotype.

Delphinium greenii Eastwood. Bull. Torrey Bot. Club 28:674. 1901. LECTOTYPE (Ewan 1942, p. 147): UNITED STATES. California, Fresno

County, Coburn Mills. 29 May 1891, T.S. Brandegee (CAS 801! [now 232]).

This listing is included to note the change in the accession number on the type specimen. Also, a considerable typesetting error resulted in the transposition of major parts of the paper in which *Delphinium greenei* was described, including the citation of specimens, which occurs (as far as I can discern), embedded in the discussion of another taxon, two pages before the description.

Delphinium gypsophilum Ewan, Univ. Colorado Stud., ser. D, Phys. Sci. 2:189. 1945. Type: UNITED STATES. California, Fresno County, mouth of Pinoche Creek, 550 ft, 25 April 1937, J.A. Ewan 10295 (HOLOTYPE: COLO; Isotypes: GH!, ILL!, LA!, NO-2!, NY!, RSA!, TEX!, UC!).

A photograph of the holotype has been seen. Lewis & Epling (1954, p. 4) state that the type specimen could not be located at COLO. I have not made a search for it there. They further state that if the holotype is indeed lost, that the specimen at NO should be the lectotype. They apparently did not realize that there were two specimens at NO. Of the two specimens, the one bearing their annotation label is the sheet embossed with the Tulane University Herbarium stamp. The other sheet merely has a printed stamp from the Tulane University Herbarium on it.

Delphinium gypsophilum subsp. *parviflorum* Lewis & Epling, Brittonia 8:5. 1954. Type: UNITED STATES. California, San Luis Obispo County, 8.8 mi W US Hwy. 101 on the north road to Adelaida, H. Lewis & C. Epling 686 (LECTOTYPE [here designated]: LA 87893!; Isotype: UC!).

Lewis & Epling (1954) did not designate a herbarium where the type sheet of their cited type collection could be found. The herbarium at LA (where they worked) would be the logical place to find the type specimen and a sheet bearing the appropriate label information and a specimen matching the description was found there. A duplicate of this collection was also found at UC. The choice of lectotype was simplified by the fact that the term "Type" had been hand written on the label of the specimen at LA and "Isotype" had been hand written on the label at UC. The writing of these terms is apparently in the same hand (probably Lewis') as that of the remainder of the label. These notes on the labels indicate that Lewis thought of the specimen at LA as "the type," making this a logical lectotype.

Delphinium hanseni arcuatum Greene, Pittonia 3:94. 1896. LECTOTYPE (Ewan 1942: 141): California, Mariposa County, Yosemite Valley, July 1896, W.L. Jepson (JEPS!).

Greene's original description states that this taxon "is a variety or subspecies which may take the name *arcuatum*." Therefore, according to the present Code of Botanical Nomenclature, Greene's name has no standing for priority, but may be used, as Ewan (1945) has, as a basionym.

Delphinium hookeri A. Nelson, Amer. J. Bot. 32:286. 1945. Based on citation of *D. exaltatum* Ait., in Hooker, *Flora Boreali Americana*. 1:25. 1840. LECTOTYPE [here designated]: CANADA. Alberta, Rocky Mountains, *T. Drummond* (K!).

Few specimens of *Delphinium glaucum* known to have been collected by Drummond are extant. The specimen at K fits the information given by Hooker with the description and was surely seen by him. Drummond probably collected the specimen during 1825-1827, as he was in areas where the plant is abundant and at a time of year (in each of the years) when flowering specimens could be obtained.

Delphinium inflexum Davidson, Bull. S. California Acad. Sci. 26:70. 1927. Type: UNITED STATES. California, Los Angeles County, Fish Canyon, San Gabriel Mountains, alongside *D. cardinale* and *D. parryi*, May 1927, R. Kessler 3641 (LECTOTYPE [Ewan 1945, p. 209]: LAM [now moved to RSA]; Isotypes: DS!,NO!).

The type of *Delphinium inflexum* represents plants formed by natural hybridization between *D. cardinale* and *D. parryi*. The flowering plant specimens from LAM have been moved to RSA.

Delphinium luporum Greene, Leaf. Bot. Observ. Crit. 1:76. 1904. Type: UNITED STATES. California, Tulare County, Coyote Creek, 30 July 1904, J.N. Culbertson 4392 (LECTOTYPE [here designated]: F!; Isotypes: CAS!,GH!,K!,MO!,NY!,POM!,UC!).

Greene's description includes only the citation of the type collection. There is no citation of herbarium where the type might be found. Labels of all the sheets listed above were hand written and noted to have been identified by Dr. Greene. The handwriting is apparently not Greene's, and his handwriting was not noticed on any of the sheets. As the specimen at F more clearly illustrates the features enumerated in the description, it is chosen as the lectotype.

Delphinium megacarpum A. Nelson & Macbride, Bot. Gaz. 55:373. 1913.
Type: UNITED STATES. Idaho, House Creek, 29 June 1912, A. Nelson
& J.F. Macbride 1779 (LECTOTYPE [here designated]: RM!; Isotypes:
GH!,ILL!,MIN!,MO!,NY!,RM(2!),US!).

Nelson & Macbride (1913) specifically cite RM as the location for their types in this paper. However, three specimens of their cited collection were found at RM. The lectotype is chosen on the basis of its adherence to the characters elucidated in the description. The only significant difference between this specimen and the description is the flower color, which may have faded with time, or this population may be variable in that respect.

Delphinium menziesii var. *fulvum* Nelson & Macbride, Bot. Gaz. 61:30. 1916.
LECTOTYPE [here designated]: UNITED STATES. Idaho, Canyon
County, Emmett, 2200 m, around brush on windswept hills, 29 Apr 1911,
J.F. Macbride 794 (LECTOTYPE: RM 70930!; Isotypes: F!,MO!,NY!,
UC!,US!,WS).

Nelson & Macbride did not list any specimens with the description of their new variety. However, since they were both working at RM during the time that the paper was written, that would be a logical herbarium to search for possible authentic specimens. A single specimen (cited above) was found that carried this name. The specimen bears an annotation label reading "*D. menziesii fulvum* N. & M. n. var." The annotation label is not dated or signed. It is therefore unclear whether it was affixed by Nelson, Macbride or someone else. In any case, the specimen matches the features described for *Delphinium menziesii* var. *fulvum*.

Delphinium mohavense Parish ex Jepson, *A Flora of California* 1:526. 1914.

This combination appears to be a *nomen nudum*. It is first published in Jepson's work as *Delphinium mohavense* Parish, *ined.* as a synonym under *D. parishii*. Jepson further indicates that *W.L. Jepson 5362*, from Barstow, California is representative of this combination. No description has been seen for this combination. Jepson's specimen from Barstow has not been located. A T.S. Brandege collection made 27 May 1902 in the Providence Mountains and stored at UC has the penciled annotation *D. mohavense* Parish *ined.*, with the initials SBP following. In the same hand is found *Delphinium coelestinum* Rydberg. Similar notes are found on *S.B. Parish 4913* in UC, without the initials. It may be that Parish realized that Rydberg's name was a later homonym and intended to propose *Delphinium mohavense* as a substitute. Tidestrom's *D. amabile* was not published as a substitute for *D. coelestinum* Rydb. until 1925

and it is not clear why Parish failed to publish his *D. mohavense* before that date.

Delphinium nudicaule Torrey & A. Gray, *Flora of North America* 1:33. 1838.

Type: UNITED STATES. California, *D. Douglas* (LECTOTYPE [Ewan 1945, p. 117]: GH!; Isotypes: BM!, K-2!, NY!).

Type material of *Delphinium nudicaule* appears to have come from coastal populations, the specimens having very similar characteristics to those of plants found on seaward facing cliffs or canyons within 5 km of the coast. The specimens are in a late flowering to early fruiting stage. Douglas most likely collected the type of *D. nudicaule* in late April or early May of 1832, in the region near San Francisco. According to McKelvey (1955), Douglas was in the region at this time, and 1832 appears to be the only year in which Douglas was in the proper area at the correct time of year to have collected the plants at the stage of growth that he did.

Delphinium nudicaule var. *elatium* Thompson, *The Garden* 19:234. 1881.

Type: UNITED STATES. California, *D. Douglas* (LECTOTYPE [here designated]: BM!; Isotypes: GH!, K-2!, NY!).

Since Thompson lists *Delphinium sarcophyllum* as a synonym with his description of the new variety and cited no other specimens or published names, the type of *D. sarcophyllum* must also serve as the type for *D. nudicaule* var. *elatium*. Thompson published the name as *D. nudicaule* var. *elatius*, but this can be treated as an orthographic error and corrected to *D. nudicaule* var. *elatium*.

Delphinium nudicaule var. *foliosum* Torrey, *Botany of the United States-*

Mexican Boundary Survey 2:30. 1859. Type: UNITED STATES. California, Napa County, March 1852, *G. Thurber* 511 (LECTOTYPE [here designated]: NY!; Isotype: K!).

Since one of the distinguishing features of Torrey & Gray's original description of *Delphinium nudicaule* was the lack of cauline leaves, there is little doubt that Torrey intended to recognize this as a distinct variety. However, the validity of this combination is questionable. Torrey's original description has merely the notation "*Delphinium nudicaule*, Torr. & Gray, Fl. 1, p. 33 & 661. Var. *caule folioso*. Napa county, California; March; *Thurber*." After a search of many herbaria, the only specimens found that fit the data given by Torrey are the two cited above. Both of these specimens bear the name *D. nudicaule* var. *foliosum*.

Delphinium nutans A. Nelson, Amer. J. Bot. 32:287. 1945. Type: UNITED STATES. Alaska, Kantishna Mining District, just outside Mount McKinley National Park, steep hillside meadow, 21 July 1939, A. & R. Nelson 3910 (LECTOTYPE [here designated]: RM 184988!; Isotypes: GH!, ILL!, RM 184987!, UC!, US!).

Nelson did not clearly designate a holotype with his description, although he wrote that the type was at RM. The isotypes at herbaria other than RM are clearly marked as such, either by typescript with the original typing of the labels, or by hand notation in the same hand as found on specimens in RM (indicating that the notes were probably made before distribution of the specimens from RM). The two specimens at RM both bear the typewritten inscription "TYPE" on them, but one of them has "Isotype" written on it in the same hand as that just mentioned. The notes have been assumed to have been made by Nelson, thus making the specimen indicated a logical lectotype. The specimens from the type collection are apparent hybrids between *Delphinium glaucum* and *D. brachycentrum* Ledeb. Both taxa are found in the area of the type collection of *D. nutans*, and putative hybrid individuals have been observed by the present author

Delphinium parishii var. *inopinum* Jepson, *A Flora of California* 1:526. 1914. Type: UNITED STATES. California, Tulare County, Kern River Canyon, near Junction Meadows, 7800 ft, 13 July 1912, W.L. Jepson 5012 (LECTOTYPE [here designated]: JEPS 2555!; Isotype: JEPS 2556!).

Jepson cited the collection number and brief locality, but not a herbarium with his description of *Delphinium parishii* var. *inopinum*. His own herbarium was a logical place to look for the type, and two sheets were found. No other sheets of this collection have been found in other herbaria. The lectotype is chosen because it shows the features of the taxon somewhat more clearly than the other specimen and also because the word "type" has been hand written on the packet glued to the sheet. It appears to be in the same hand as that found on the labels (probably Jepson's, but in any case the notation was made very early in the preparation of the specimens).

Delphinium parryi A. Gray, Bot. Gaz. 12:53. 1887. LECTOTYPE (here designated): UNITED STATES. California, San Bernardino County, 1876, C.C. Parry & J.G. Lemmon 5 (GH!); Isotypes: F!, NY-2!.

Gray's (1887) citation of specimens reads "founded on specimens collected in San Bernardino County, California, by Parry in 1850, Parry and Lemmon in 1876, and by Parish; also apparently the same collected near Santa Barbara

by Brewer." These are syntypes as Gray has listed them. Ewan (1945. p. 180) cites the Parry collection of 1850 at NY as the type and lists *Parry & Lemmon 5* as a paratype. Ewan's choice of lectotype for *Delphinium parryi* must be contested. The specimen cited by Ewan, said to be in NY, could not be located and any notes that may have been made on it are not known to me. I have seen no collection from San Bernardino Co. by Parry in 1850 from any herbarium consulted (see list in Acknowledgments). Specimens of *Parry & Lemmon 5* are found in F,GH and NY(2). Of these, only the sheet in GH has been annotated by Gray as *D. parryi*. Specimens collected by Parish that fit the data are: San Ignacio Pass, 12 March 1881, *Parish & Parish 256* (GH!); Mentone, 5 May 1885, *Parish 2027* (JEPS!-other specimens with this number bear different collection data); San Gorgonio Pass, April 1882, *Parish 256* (MASS!); foothills, San Bernardino Mts., May 1885, *Parish 256* (MO!); San Gorgonio Pass, March 1881, *Parish & Parish 256* (G-BB!); Cabezon, April 1882, *Parish & Parish 256* (G-BB!,P!); border of Colorado Desert, Cabezon Station, SPRR, March 1883, *Parish & Parish 255* (UC!). The only one of these that Gray was certain to have seen and which bears his annotation as *D. parryi* is the *Parish & Parish 256* specimen at GH (which is on the same sheet as *Parry & Lemmon 5*, but bears a separate annotation by Gray). The only Brewer collection I have located which might be that referred to by Gray is *Brewer 331*, 25 May 1861 (K!,UC!). Brewer's specimens can be eliminated as possible lectotypes on the basis of Gray's less than certain inclusion of them under *D. parryi*. In fact, the collection would be later cited as a paratype of *D. parryi* subsp. *maritimum* (Davidson 1908). Among these possibilities, the only specimens that Gray is certain to have seen are the collections by Parish & Parish and by Parry & Lemmon at GH and the logical choice of lectotype should come from one of these two. The Parry & Lemmon specimen is chosen because it is a more complete specimen, showing the root (not found on the Parish & Parish specimen), although this plant is somewhat shorter and with fewer lobes on the leaves than most *D. parryi* from that region.

Delphinium ornatum Greene, *Flora Franciscana* 304. 1892. Type: UNITED STATES, California, San Luis Obispo County, Nipoma Mesa, 10 April 1861, *W.H. Brewer 409* (LECTOTYPE [here designated]: UC 9252!; Isotypes: GH!,UC!,US!). Not *Delphinium ornatum* Bouche, Bot. Zeit. 1:25. 1843.

Greene cites "State Survey n. 409" as representative of his new name. W.H. Brewer did most of the botanical collecting for the State Geological Survey. At the time he published *Delphinium ornatum*, Greene was at the University of California, where most of the specimens from the survey are housed. Two specimens that fit the data for possible types were located at UC. The lectotype

was chosen on the basis of Greene's reference in his description to the State Survey collection without mentioning Brewer. It is almost certain that Brewer was the collector of both specimens at UC.

Delphinium parryi subsp. *eastwoodae* Ewan, Univ. Colorado Stud., ser. D, Phys. Sci. 2:182. 1945. Type: UNITED STATES. California, San Luis Obispo County, McDonalds Ranch, 2 May 1896, A. Eastwood (HOLOTYPE: CAS 991 [now 236!]).

Included to note the change in accession number of the type. In additions, see discussion under *Delphinium parryi* subsp. *ramosum*.

Delphinium parryi subsp. *ramosum* (Eastwood) Ewan, Univ. Colorado Stud., ser. D, Phys. Sci. 2:87. 1945. LECTOTYPE (here designated): UNITED STATES. California, San Luis Obispo County, McDonalds Ranch, 2 May 1896, A. Eastwood (CAS 991!).

This combination has not been validly published, although it has been effectively published. The combination appears in Ewan's key to the California taxa of *Delphinium* as *D. parryi eastwoodae*, but no reference is made to it in the text of his work. The type specimen for *D. parryi* subsp. *eastwoodae* bears the inscription "*D. variegatum* var. *ramosum* n. var." on its original label. Ewan annotated the specimen in 1943 with the combination *D. parryi* subsp. *ramosum* (Eastwood) Ewan, apparently thinking that Eastwood had published her new variety and Ewan intended to use it as a basionym for his subspecies. By the time he published his synopsis, Ewan apparently realized that Eastwood had not published var. *ramosum* and it was therefore unavailable for use as a basionym. He then apparently chose to use the name *eastwoodae* for his subspecies in the text of his work, but forgot to make the appropriate change in the key. This interpretation is supported by the fact that *D. parryi* subsp. *eastwoodae* does not occur in the key and seems to fit in the location where *D. parryi ramosum* is found.

Delphinium parishii subsp. *purpureum* Lewis & Epling, Brittonia 8:15. 1954. Type: UNITED STATES. California, Ventura County, Cuddy Valley Road, 0.1 mi from jct. with Cuddy Canyon Road, Mount Pinos, 5 June 1943. H. Lewis & D. Dunn 478 (LECTOTYPE [here designated]: LA 87897!; Isotypes: CAS!,GH!,RSA!,UC!).

Specimens in each of the herbaria cited above, with the exception of the one at LA, all bear the handwritten term "Isotype" on them. It appears to be

in the same hand (probably Lewis') as that which wrote the collection number and combination on the labels. The specimen at LA bears no notation of this kind, although the word "Type" is written on it above the label (it appears to be a different hand). Further complicating what would seem a straightforward choice for the lectotype is the fact that the type collection was made in an extremely variable population. The specimen at LA is somewhat unlike other members of the taxon in that it is a very robust individual, taller than normal, with an abundance of branches, leaves much larger than normal and leaves more common on the stem than most plants of this subspecies. The specimens in other herbaria are much more representative of the average plants in most populations. While it is tempting to choose a lectotype that better illustrates the features of the taxon, there is little doubt that the specimen at LA was meant by the authors as the type for their new name. Therefore, that specimen is designated as the lectotype.

Delphinium patens Bentham, *Plantae Hartwegianae* 296. 1848. Type: UNITED STATES. California, in valle Sacramento, 1847, *K.T. Hartweg 1632 (224)* (HOLOTYPE: K!; Isotypes: BM!, G!, K!, NY!, P!).

The type collection may have come from Marysville Buttes, Sutter County, which Hartweg visited in early May of 1847 (McKelvey 1955) and should have been able to collect the plant at the proper stage of growth.

Delphinium peltatum Hooker *ex* Huth, *Bot. Jahrb. Syst.* 20:449. 1895. *nomen nudum*.

This combination was found on a sheet of Douglas' collection of *Delphinium nudicaule* from California, in the Hooker Herbarium at K. It appears that Hooker's original name for what he published as *D. sarcophyllum*, would have been *D. peltatum*. Drawings had been prepared, but I have seen no manuscript by Hooker mentioning this combination. Huth (1895, p. 449) cites *D. peltatum* in synonymy under *D. nudicaule*, stating that the name had been found on a specimen at LE.

Delphinium penardii Huth, *Helios* 10:34. 1893. LECTOTYPE [here designated]: UNITED STATES. Colorado, Boulder County, Flagstaff Hill, near Boulder, 6000 ft, July 1891, *E. Penard 8* (G-BB!).

Huth (1893) cites "Floret Julio. . . Colorado. Flagstaff Hill and Boulder 2000 m alt. (E. Penard 1891 HEB.)" with his description of *Delphinium penardii*. A search for possible type specimens for this name at G-BB (HEB was

Huth's abbreviation for Boissier's Herbarium) yielded three prospective type specimens. These were the lectotype cited above and two sheets from Colorado, Boulder, 5000 ft, July 1891, *E. Penard* 9. The specimen chosen as the lectotype, best shows the characters of the taxon as described by Huth. The flowers in the packet may well have been used to draw the diagram published with the description. The lectotype chosen here bears a label in the same hand as that noted on the lectotype of *D. barbeyi*, reading "*D. penardii* Hth."

Delphinium polycladon Eastwood, Bull. Torrey Bot. Club 28:669. 1901. Type: UNITED STATES. California, Fresno County, South Fork of Kings River, near the forks of Bubbs Creek, in a thicket in springy ground, 9 July 1899, *A. Eastwood* (LECTOTYPE [Ewan 1945: 141]: CAS 931 [now 229]!; Isotype: CAS 230!).

Ewan's rationale for his choice of the lectotype is not clear. I found no indication in the description or on the labels to indicate which specimen might have been taken by Eastwood as the primary type. In my opinion, the specimen that is now the isotype, better illustrates the features of the species as it is found in nature than does the lectotype. However, this is an insufficient reason to change the choice of lectotype.

Delphinium pratense Eastwood, Bull. Torrey Bot. Club 28:669. 1901. Type: California, Fresno County, Horse Corral Meadow, S Fork Kings River, 9 July 1899, *A. Eastwood* (CAS 990! [now 238]).

The CAS specimen appears to be the only representative of this collection, others not having been found in the herbaria listed in the acknowledgments. In any case, even though Eastwood merely cited the type collection by locality and date, but did not indicate a herbarium for the specimen along with her description (as she did for other plants in the same publication), there is little doubt that this is the proper type specimen. The specimen has "Type" written on its label, in apparently the same hand (assumed to be Eastwood's) as that with which the precise locality information was recorded on the label. If the specimen cannot be considered a holotype, then lectotypification was effected by Ewan (1945, p. 104).

Delphinium quercetorum Greene, *Plantae Bakerianae* 3(1):4. 1901. Type: UNITED STATES. Colorado, Montrose County, Gunnison Watershed, Cerro [Summit, 8000 ft], 12 July 1901, *C.F. Baker* 412 (LECTOTYPE [Ewan 1945, p. 139]: ND-G 3485!; Isotypes: GH!.K!.LA!.MIN!.MO!.NY!.POM!.RM-2!.UC!.US!.Z-2!). Not *D. quercetorum* Boiss. & Hausskn., *Flora Orientalis*, Suppl. 20. 1888.

Delphinium bakerianum Bornmüller (Bull. Herb. Boissier II 4:1084. 1904.) has been provided as a substitute name for *D. quercetorum* Greene.

Delphinium robustum Rydberg, Bull. Torrey Bot. Club 28:276. 1901. Type: UNITED STATES. Colorado, Las Animas County, Wahatoya Creek, below the Spanish Peaks, 7 July 1900, P.A. Rydberg & F.K. Vreeland 6217 (LECTOTYPE [here designated]: NY!; Isotypes: NY!,RM!).

Rydberg did not cite a repository for his type of *Delphinium robustum*. Ewan (1945) cited the type as being present at NY. A search of *Delphinium* specimens at NY yielded two sheets of the type collection. The one with the description glued on to the sheet is designated as lectotype. There is no apparent notation by Rydberg that one or the other specimen is to be preferred as a type.

Delphinium roseum Heller, Muhlenbergia 2:35. 1905. Type: UNITED STATES. California, Kern County, rocky ridge to the north of the mouth of Kern Canyon, 12 April 1905, A.A. Heller 7655 (LECTOTYPE [here designated]: CAS 228!; Isotypes: AC!,BM!,CAS 227!.F!,GH!,K!,MO!,NY!,P!,PH!,POM!,UC!,US!).

Ewan (1945, p. 97) had previously provided a lectotype (PH). However, this lectotypification must be superseded, because in the introductory material of the paper where Heller described *Delphinium roseum*, he states "The types of all new species described by me from this collection are deposited in the herbarium of the Academy." This refers to the California Academy of Sciences (CAS), and the type must be located there. Two specimens of Heller 7655 are housed at CAS. One has been chosen here as the lectotype.

Delphinium ruthae Nelson, Amer. J. Bot. 32:287. 1945. Type: UNITED STATES. Alaska, Mount McKinley National Park, above Sable Pass, near mile post 44, 8 August 1939, R.A. Nelson 4052 (LECTOTYPE [here designated]: RM!; Isotypes: GH-2!,ILL!,MO!,NY!,UC!,US!).

Nelson did not specify a herbarium where the type of *Delphinium ruthae* might be found. He had designated a herbarium (RM) for *D. nutans* which he described just preceding *D. ruthae* in the same paper. There is little doubt that Nelson meant the specimen at RM as the type, and it matches the published description well.

Delphinium sarcophyllum Hooker & Arnott, *The Botany of Captain Beechey's Voyage* 317. 1838. Type: UNITED STATES. California, *D. Douglas* (LECTOTYPE [here designated]: BM!; Isotypes: GH!,K-2!,NY!).

Hooker & Arnott's combination may be interpreted as a superfluous name, since they cite *Delphinium nudicaule* Torrey & Gray as a synonym and the same collection is used to provide type specimens for both names. On the other hand, Hooker & Arnott specifically state that their plant is different from that of Torrey & Gray, and enumerate the differences in their descriptions both in Latin and English). In addition, it is by no means certain that Douglas made only a single collection of *D. nudicaule* (or any other species that he collected more than one sheet of), since the label information on most Douglas specimens read simply, California, Douglas, 1833 or Nova California, Douglas, 1833. Of course, Douglas did little if any collecting in California in 1833. Thus, labels are of little help in determining where and when Douglas made his collections in California.

Delphinium scopulorum A. Gray, *Plantae Wrightianae* 2:9. 1852. Type: UNITED STATES. New Mexico, Grant County, 10-15 mi E Santa Rita del Cobre, near the Mimbres River, mountain ravine, 27 October 1851, *C. Wright 842* (LECTOTYPE [Ewan 1942, p. 147]: GH!; Isotypes: K!,MO!,US!).

Additional details on Wright's collecting localities and itineraries was found in Johnston (1940). Details of the date and a more precise locality were found there than on the herbarium labels. The name *Delphinium scopulorum* has been greatly misused by collectors ever since its description by Gray. For a time, during the latter part of the 19th century, almost any large *Delphinium* from western North America was called *D. scopulorum*. The practice continued well into the 20th century, and still occurs now. The difficulty with this name apparently stems from a quirk of circumstances involving middle 19th century botanical exploration and economics. A significant part of Charles Wright's income during his travels in western North America was derived from sale of his specimens. Gray acted as an agent of sorts for Wright, arranging the sale of sets of specimens to various individuals and institutions. Collectors would collect a large number of specimens of any given species, so that each subscriber could get a complete set of the plants. At times, it was not possible to obtain large numbers of a given plant, and sets were sometimes made up of multiple collections from different localities. Normally, collectors and/or their agents would make sure that a collection was made up of similar individuals. Such, apparently were the circumstances when Gray received the packet of Wright's plants containing the type collection of *D. scopulorum*. There were not enough duplicates of Wright's collection of *D. scopulorum* to fill all the orders and other

Delphinium specimens (presumably collected by Wright) were included under the same number for distribution. Gray apparently did this routinely with Wright's collections, as Ewan (1942) quotes E.T. Wherry "Wright numbers are meaningless, one number on sheets in 4 different herbaria bearing 4 separate species or subspecies." In the case of *D. scopulorum*, this action set in motion a chain of events that has led to the present confusion concerning this species.

Delphinium scopulorum is a very well marked and geographically relatively confined species of southeastern Arizona and southwestern New Mexico. The specimens cited above represent the normal appearance of the plants, which have dimorphic leaves, usually have basal leaves at anthesis and are found primarily in riparian woodlands of the lower slopes of the mountains in these areas. On the other hand, a supposed duplicate of this collection (it bears the number 842) at PH is quite a different plant. It is a relative of *D. novomezicanum* Wootton (which was not described until 1910) and a plant that has monomorphic leaves, no basal leaves at anthesis and in the region where *D. scopulorum* grows, is found in subalpine meadows. The origin of the specimen is not clear, as Wright's itinerary does not indicate that he was high in the mountains often. It is possible that Wright collected this plant during an excursion to the mountains of southeastern Arizona. In any case, although Gray's description clearly is derived from the plants represented by the lectotype, his own interpretation of *D. scopulorum* in later years suggests that he actually thought that only a single species was represented under Wright's number 842. Exacerbating the problem, Ewan (1942) published a photograph of the *Wright 842* specimen at PH and stating that it represented the species better than the type in GH.

The upcoming *Flora of North America* may help to solve the problem of misidentification and misunderstanding of *D. scopulorum*. In the meantime, it is always interesting to examine the *D. scopulorum* folder in a herbarium from which I have not previously studied the specimens.

Delphinium scopulorum var. *stachydeum* A. Gray, Bot. Gaz. 12:52. 1887.
LECTOTYPE [here designated]: UNITED STATES. Oregon, Union
County, July 1886, *W.C. Cusick 487* (GH!).

Three specimens collected by Cusick and fitting the data provided by Gray were found at GH. The pertinent information on these sheets is summarized as follows: 1) 1886, *Cusick 487*, annotated in Gray's hand with his new combination (the sheet contains all the above ground parts of one individual and the inflorescence of another); 2) 1886, *Cusick 487*, also annotated by Gray with his new combination (the sheet contains most of the above ground parts of one individual and part of a fruiting inflorescence of another); 3) Union County, Oregon, 1886, *Cusick 487*, also annotated by Gray (the sheet contains

four sections of stem, from as many as four different individuals, two with single leaves attached, one being the terminal inflorescence branch and the fourth bearing a short branch from an inflorescence). Other Cusick specimens matching the data and found elsewhere are (all from Oregon): 4000 ft., dry soil, July 1886, *Cusick 487* (F); base of Blue Mountains, 4000 ft., dry rich soils, 1886 *Cusick 487* (UC); base of Blue Mountains, head of Power River to head of Burnt River, July 1886, *Cusick 487* (UC); base of Blue Mountains, rich dry bottoms, *Cusick 487* (PH); Union County, August 1877, *Cusick 487* (G-BB [2]). Gray also cited Pringle collections from Arizona and New Mexico as representative of his new var. *stachydeum*. The source of this reference is unclear. The apparent source of this citation is *Pringle 304* from Arizona (GH). This specimen is somewhat intermediate between *Delphinium scopulorum* A. Gray and *D. andesicola* Ewan and may represent a hybrid between those two taxa. In any case, Gray's description was apparently based on the Cusick collection and not that of Pringle. Therefore, one of the Cusick specimens cited above must be designated as the lectotype. The others may be isotypes, but due to the variation in data among the various specimens, I will not formally include them as isotypes even though each is *D. stachydeum*. Since it is clear by his annotations that Gray had seen the specimens at GH, and similar annotations are not found on the specimens at other institutions, the lectotype must come from among those at GH. The basis of choice of lectotype was the match with the description and the fact that specimen on the right hand side of the sheet is almost a complete plant. Tidestrom's combination is apparently the correct one for this name, even though he did not provide a complete citation of the basionym at the time he published it and he merely used the name in the discussion of another species (although he did cite *D. scopulorum* var. *stachydeum* Gray). The same combination was published again (with Nelson & Macbride as the non parenthetical authors), two years later (*Bot. Gaz.* 61:31. 1916) with full citation of Gray's description. Though Tidestrom's combination would not be valid under today's Code of Botanical Nomenclature, it was valid at the time it was published and therefore Tidestrom's name is the proper authority to associate with *D. stachydeum*.

Delphinium sonnei Greene, *Pittonia* 3:246 (1897). LECTOTYPE [here designated]: UNITED STATES. Nevada, Trinity Mountains, May 1868, S. Watson 39 (GH!); Isotype: (US!).

Ewan (1945, p. 116) had previously provided a lectotype as: UNITED STATES. California, Nevada County, Donner Lake, 21 July 1893, E.L. Greene (ND-G 3389!). However, since Greene's *Delphinium sonnei* is based on *D. decorum* var. *nevadense* Wats., Ewan's lectotypification of *D. sonnei* is superfluous. Watson (Brewer & Watson 1880a) clearly indicated that *Delphinium decorum*

var. *nevadense* was based on *D. menziesii* (sensu Watson) of the *Botany of the Clarence King Expedition*. Watson (1871), in his discussion of what he recognized as *D. menziesii*, cites his number 39 as typical of the plant, with his number 40 having pink flowers and number 41 with double flowers. The choice of lectotype is based on the best match with Watson's original concept of *D. menziesii* (1871, p. 11), both by his statements in the protologue and the description of the plant.

Delphinium trolliifolium A. Gray, Proc. Amer. Acad. Arts 8:375. 1872. Type: UNITED STATES. Oregon, [Benton County, Silver Creek,] 1871, *E. Hall 15* (LECTOTYPE [Ewan 1945, p. 142]: GH!; Isotypes: BM!, F!, K!, MO-2!, P!).

Most specimens of the type collection have merely Oregon, 1871, *E. Hall 15* on them. However, the specimen at F has the additional information "Silver Creek" which is in Benton County, near Corvallis and where the species is locally abundant. The type had previously been thought to have come from the lower Columbia River.

Delphinium uliginosum Curran, Proc. California Acad. Sci. 1:151. 1885. Type: UNITED STATES. California, Colusa County, near Epperson's, swampy ground, July 1884, *M.K. Curran* (LECTOTYPE [Ewan 1945, p. 98]: CAS!).

There is little doubt that the specimen cited by Ewan is that which was meant as the type by Curran. No other specimens of *Delphinium uliginosum* collected by Curran have been found in numerous searches of herbaria. Curran cited Lake County with the collection data in the description, but the specimen label reads Colusa County. The plant represented by this type is very distinct and ecologically restricted to serpentine seeps.

Delphinium umbraculorum Lewis & Epling, Brittonia 8:19. 1954. Type: UNITED STATES. California, Santa Barbara County, San Rafael Mts., 1.4 mi N Davy Brown Campground, 14 May 1949, *H. Lewis, M. Lewis & M. Mathias 792* (LECTOTYPE [here designated]: LA!; Isotypes: RSA!, UC!).

The specimen selected as the lectotype is undoubtedly the sheet considered by Lewis & Epling as their primary type. This position is suggested by the fact that the label of the sheet at LA has the word "Type" written on it in the same hand (probably Lewis') as that which completed the rest of the label.

Further, the sheets at RSA and UC each have "isotype" printed or written on their labels, apparently before they were distributed to those herbaria.

Delphinium variegatum Torrey & A. Gray, *Flora of North America* 1:32. 1838.

Type: UNITED STATES. California, *D. Douglas* (LECTOTYPE [Ewan 1945, p. 184]: GH!; Isotypes: K-2!, LE, NY!).

Additional specimens *Delphinium variegatum* at K, collected by Douglas, appear to have come from an area other than that where Douglas collected the lectotype. As with several of Douglas' type collections for *Delphinium*, it appears that he collected the same species at different times and places. It is likely that Douglas made the type collection in late April of 1831, in central Monterey County, during a trip to Santa Barbara.

ACKNOWLEDGMENTS

I wish to express my sincere appreciation to the directors, curators and staff of the following herbaria who have either loaned specimens for my study or allowed me to consult their collections during my visits. Herbaria are listed by their acronyms as they appear in Index Herbariorum. AC, ARIZ, ASTC, ASU, B, BM, C, CAS, CM, CS, DAV, DS, DWC, ECON, ENCB, F, G, GFND, GH, ILL, ISM, JEPS, K, LA, LINN, LL, MASS, MEXU, MINN, MO, MWI, ND, ND-G, NMC, NO, NY, OSC, P, PAC, PH, POM, RM, RSA, SBBG, TAES, TAMU, TENN, TEX, TRT, UBC, UC, US, UTC, VDB, WILLU, WIS and Z. This study was made possible in part, by grants from Research Enhancement Funds from Sam Houston State University and from the Friends of the Jepson Herbarium.

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